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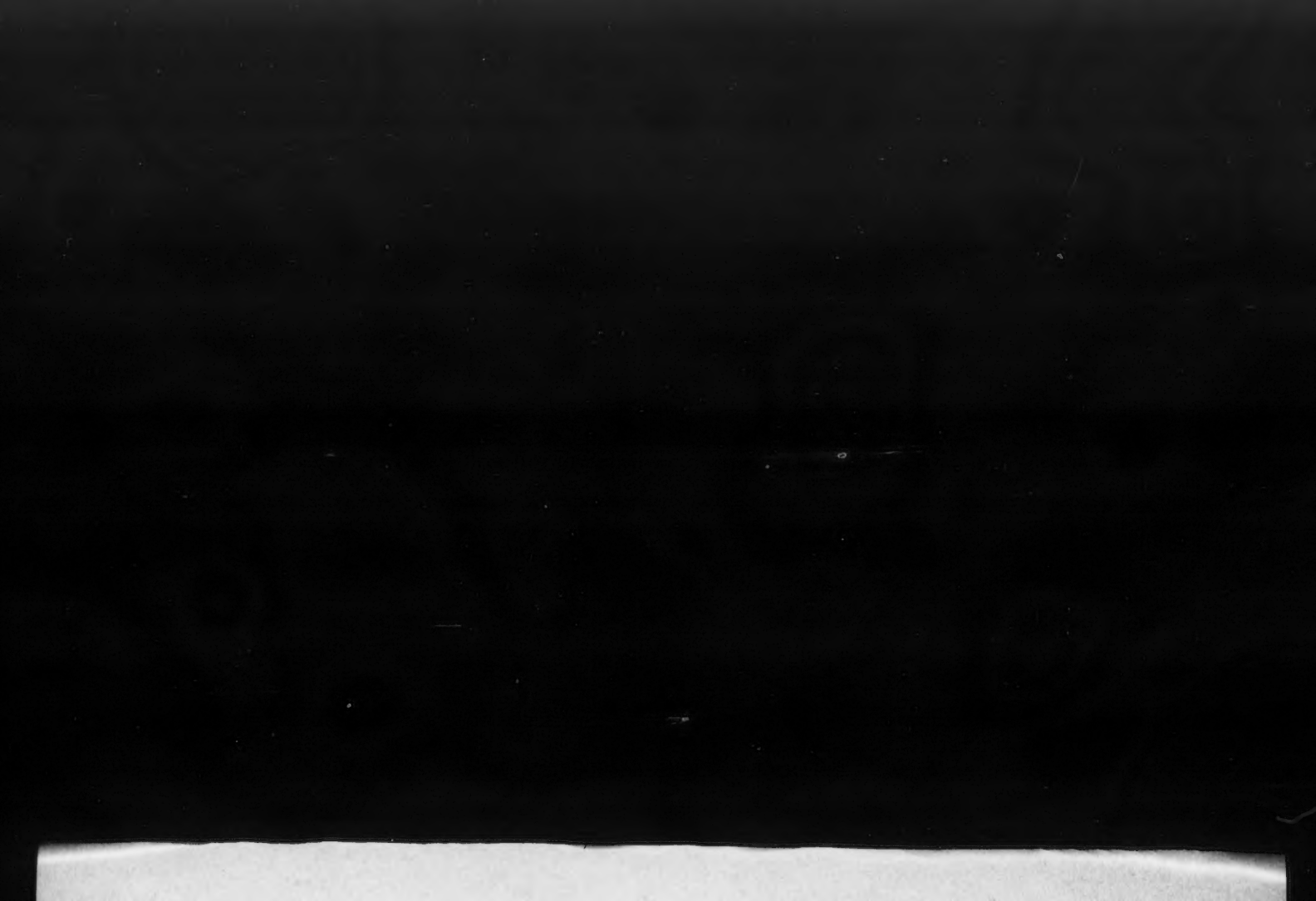

ENTOMOLOGICAL NEWS

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Tenodera angustipennis Saussure established in Southern New Jersey (Orthoptera: Mantidae).

By HENRY FOX, Associate Entomologist, U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine.

Early in 1933 Frank Morton Jones (ENT. NEWS, XLIV (1): 1-3) reported the presence in this country of a second species of oriental mantis, *Tenodera angustipennis* Saussure, material of which he had collected at several points in Delaware and the adjoining section of Maryland.

The earliest indication that this same species had become established in southern New Jersey came to my attention in the autumn of 1933, when Mr. Carl Ilg, of the Department of Entomology, New Jersey Agricultural Experiment Station, handed me several egg masses which he informed me had been collected at Cedarville, Cumberland County. These egg masses I subsequently placed in shrubbery growing on the grounds of an apartment in Riverton, which I occupied at the time. Whether the eggs hatched and gave rise to any adults at that place I am unable to say, as I vacated the apartment early in the summer of 1934, and a search made during a visit to Riverton in the autumn of the same year failed to reveal a trace of the insect, although egg masses of the older established form *T. sinensis* Saussure, were frequent on that and adjoining properties.

During a brief sojourn in northern Cape May County in mid-September, 1934, I found clear indications that *angustipennis* was well established in that section, adult examples being taken at Ocean View, South Seaville, and West Ocean City (Marmora). The greatest number was obtained in the nursery of Mr. Melvin Wills, South Seaville, where, if anything, it was rather more numerous than *sinensis*, which is known to have been present in the vicinity for many years.

About two weeks after finding the species in Cape May County I found an adult and several egg masses at Elmer, Salem County.

Diligent search on several occasions in the autumn of 1934 at Moorestown, failed to reveal any evidence of the presence of *angustipennis* at that locality, although the other species, *sinensis*, is common there.

In an effort to ascertain whether there had appeared any earlier announcement of the presence of *angustipennis* in New Jersey, I wrote to Mr. Ilg, who informed me that, while he knew of no published record, an egg mass of the same species had been collected in an apple tree at Glassboro as far back as October, 1929. Mistaking this for an egg mass of the native[1] *Stagmomantis carolina* (Johannsen), he paid no further attention to it until after the appearance of Mr. Jones' paper announcing the presence of the new form in this country, when he sent a similar egg mass to Mr. Rehn, who identified it as belonging to *angustipennis*.

I am also informed by Mr. Ilg that, since 1929, egg masses of the newly established mantis were collected in 1931 at Hammonton by A. J. Farley and in 1932 at Cedarville, by R. C. Burdette. In the autumn of 1933, accompanied by Burdette, Mr. Ilg visited the locality at Cedarville and there gathered about 30 egg masses. These included those presented by Mr. Ilg to me, as well as some sent to W. T. Davis, Staten Island, and to Mr. Herman Hornig, Reading, Pennsylvania. The remainder of the series, according to Mr. Ilg, was distributed about New Brunswick.

Besides those previously mentioned, Mr. Ilg informed me that in November, 1933, Mr. E. G. Scovell sent in for identification an egg mass of *angustipennis* collected in Salem County, along with the statement that numerous other egg masses of the same general appearance had been seen in the county.

From these various records, as well as from the observed frequency of the species in Salem, Cumberland and upper Cape May counties, it seems probable that *angustipennis* must be

[1] That is, native to this country, but not definitely known to occur in New Jersey.

rather generally distributed throughout southern New Jersey, north, at least, to Glassboro and Hammonton. Also the possible future development of the species in the form of local colonies may perhaps be anticipated at the localities mentioned where egg masses were noted as intentionally introduced.

Since the preceding account was written, the writer, during a visit at Cape May Court House late in November, 1934, made an effort to determine the relative proportion formed by *angustipennis* in the total mantid population of that and one other nearby locality. The insects having disappeared at the time, the egg capsules were utilized for this purpose. At Court House a search on parts of two consecutive days showed that out of a total of 127 egg capsules observed, 38, or 30 percent, were of *angustipennis*, the remainder being *sinensis*. On another day, at Stone Harbor, during about two hours' search between showers, 14 capsules, out of a total of 143, were of *angustipennis*, indicating it as forming only about 10 percent of the mantid population of that place.

A curious feature in the distribution of these egg capsules in the case of both species was their relative abundance within town limits and their apparent scarcity in open country away from the vicinity of dwellings.

In view of the fact that both species of mantids now established in New Jersey have similar habits, it would seem that they would form promising material for a study of competition in the struggle for existence. Apparently one way to get data in such a study would be to compare the relative abundance of the egg capsules of the two species over a series of years.

The Prothoracic Pleurites of Coleoptera.

By G. F. Ferris, Stanford University, California.

(Continued from page 68.)

Comparison of the Two Types.

The two forms here described may be regarded as types of the two great groups of the Coleoptera, the Adephaga and the Polyphaga. That a difference in the prothoracic pleurites of these two groups exists has long been recognized by coleopter-

ists, but the attempts to express these differences have been curiously unmorphological and reveal no clear understanding of the situation. Such statements in regard to the Polyphaga as "notum not separated from the pleura by distinct sutures," "prothoracic pleural sutures lacking," and "pleuron frequently undivided into sclerites and the suture between that region and the pronotum, on either side, likewise often absent," are but unsatisfactory—and for that matter quite untrue—descriptions of the actual morphological situation.

In the light of what has been shown, supported by the study of representatives of about forty well distributed families of the Coleoptera, we may attempt to re-define the differences in the prothoracic pleural structure of Adephaga and Polyphaga.

The Polyphaga always with the prothoracic pleurites much reduced in size and forming a single plate or "eutrochantin," this plate usually being partially or even entirely concealed within the coxal acetabulum; prothoracic pleural apophysis usually well developed, although rarely lacking; sides of the prothorax formed entirely from the notum, which meets the sternum along a noto-sternal suture anterior to the coxae or this suture suppressed by fusion of the two parts, and frequently meeting the sternum posterior to the coxae.

The Adephaga always with the prothoracic pleurites strongly developed, forming a conspicuous part of the externally visible structure of the segment, a well defined noto-pleural, as well as a pleuro-sternal suture being present; notum meeting the sternum and forming a noto-sternal suture for at the most but a short distance near the anterior border of the segment and never meeting the sternum posterior to the coxae; trochantin present as a distinct piece; pleural apophysis never developed.

Notes.

About forty families, well distributed throughout the major groups of the Coleoptera, have been examined in the course of this study. No departures from the two types as described appear to such a degree as to disturb the basic conclusion that as far as the prothoracic pleurites are concerned the beetles definitely fall into two great groups. Representatives of the

two doubtful families Rhyssodidae and Cupesidae have been examined and as far as these structures are concerned both these families are definitely Adephagous. The Adephaga, especially, cling closely to their common type.

In the Polyphaga extraordinary secondary developments occur in the families Histeridae, Scarabaeidae, Lucanidae, Curculionidae (subfamily Calandrinae) and especially in the Tenebrionidae as represented by the genus *Eleodes*. In this last named form there is a complete breakdown of the landmarks but the morphological interpretation attainable by comparison with less modified forms is clear. In spite of the modifications presented the adherence to the basic type is not disturbed.

It is evident that if the interpretations of the prothoracic pleurites which are here presented are valid, the existing literature contains many errors. Such, for example, is the statement used in some keys that in certain families of the Polyphaga the "trochantin"—meaning what is here considered to be the entire pleurum—is lacking. It is not lacking in any family that has been examined, this including some to which the quoted statement is supposed to apply. Such a statement as "prosternal epimera fused in the middle line behind the coxae" as applied to the weevils is obviously erroneous, it being the notum which in this group closes in behind the coxae. And so with numerous other statements which the student who accepts the point of view herein expressed will easily detect.

It would be well to call attention to certain methods which have been used in connection with this study. In order to make the necessary dissections from pinned material—which is all that is usually available—the tissues must be softened and in most cases bleached. The softening can be accomplished by the usual boiling in caustic potash. To render specimens translucent, a bleaching medium developed by Mr. Richard Blackwelder and later to be described by him in detail has been employed. This fluid consists of hydrogen peroxide and ammonia and has proven splendidly effective, reducing even very black specimens to a proper state in a time frequently measureable in minutes. It will constitute a notable addition to our available methods of study.

Four New Texas Coleoptera (Buprestidae and Cerambycidae).

By JOSEF N. KNULL, Ohio State University, Columbus, Ohio

Agrilus esperanzae n. sp. (Buprestidae).

Form slender, elongate, cupreous above and beneath, a dark blue area covering most of dorsal surface of pronotum, two similar areas on elytra, one back of scutellum and a transverse band back of middle, each elytron with four white pubescent spots.

Head with front convex, slight indication of a median depression on vertex; antennae short, extending to middle of pronotum when laid along lateral margin, serrate from the fifth joint.

Pronotum slightly wider than long, widest back of middle; sides arcuately rounded anteriorly, slightly constricted toward base, when viewed from the side the marginal and submarginal carinae are separated for their entire length; disk convex without trace of median depression, lateral depressions well marked, prehumeral carinae short, straight; surface obliquely rugose, the rugae well separated; lateral depressions pubescent. Scutellum transversely carinate.

Elytra wider than pronotum at base; sides strongly constricted in middle; apices broadly rounded, serrulate; disk slightly flattened, sutural margins elevated posteriorly, basal depressions moderately deep; surface imbricate punctate, sparsely clothed with short, inconspicuous hairs, each elytron ornamented with four spots of recumbent white pubescence, one in basal depression, a small round one in front of middle, an elongate patch at middle and a fourth one on apical third.

Abdomen beneath sparsely punctate, clothed with short recumbent white hairs which are more numerous on sides of third ventral segment, first two ventrals not modified in the middle, last ventral with a deep narrow emargination; prosternal lobe truncate. Tibiae slender, not mucronate. Tarsal claws similar on all feet, cleft near base, inner tooth broad, points not turned inward.

Length 4.3 mm.; width 1 mm.

Holotype, probably a female, labeled Brownsville, TEXAS, June 3, 1934, J. N. Knull, collector, in collection of the writer.

This species would run to *A. palmicollis* Horn in Fisher's * key. However it can be separated from this species by its more slender form, markings on elytra and structure of the last abdominal segment.

Agrilus viridescens n. sp. (Buprestidae).

Form and size of *A. egenus* Gory, head bright green on front, vertex and dorsal surface cupreous with viridescent luster, ventral surface shining cupreous.

Head with front convex coarsely granulose, becoming rugose on vertex, no trace of median depression; antennae reaching to about middle of pronotum when laid along lateral margin, serrate from the fifth joint.

Pronotum wider than long, slightly narrower at base than at apex, widest in the middle; sides arcuately rounded in front, sinuate at base; when viewed from the side the marginal and submarginal carinae are joined at basal fourth; disk convex, a lateral depression on each side, prehumeral carinae strongly elevated, a rather obscure line extending from scutellum to middle; surface coarsely transversely rugose. Scutellum transversely carinate.

Elytra wider than pronotum at base; sides constricted near middle, broadly expanded back of middle, tips separately rounded, finely serrulate; disk with sutural margins strongly elevated posteriorly; surface imbricately punctate, clothed with scattered, short, recumbent pubescence.

Abdomen beneath finely punctate, clothed with short pubescence; first and second segments rounded, a line of longer pubescence extending from prosternum to first abdominal segment. Prosternal lobe broadly emarginately truncate. Tibiae slender, the anterior and middle pairs mucronate on inner margin at apex. Tarsal claws somewhat similar on all feet, cleft, the outer tooth long, the inner one about one-half the length of the outer and not turned inward; anterior claws of male more deeply divided with inner tooth more pointed and nearly the length of the outer one.

The female differs from the male in having the front of the head cupreous with a viridescent luster, anterior and middle tibiae unarmed at apex and median line of long pubescence lacking on ventral surface.

Length 4.3 mm.; width 1.2 mm.

* Fisher, W. S., U. S. National Museum Bull. 145, pp. 1-347, 1928.

Described from a series of specimens collected from the foliage of mesquite (*Prosopis juliflora* D. C.) at Brownsville, TEXAS, May 25 to June 3; Ella, Texas, May 31, and Gillespie Co., Texas, June 12 to 14, 1934, by J. N. Knull.

Holotype male, labeled Brownsville, Texas, May 22, in the collection of the writer. Paratypes in the collections of Ohio State University and the writer.

According to Fisher's * key this species would run to *A. pubescens* Fisher, but it lacks the sutural pubescent stripe of this species. The male genitalia are somewhat similar to those figured by Fisher for *A. pusillus* Say.

The writer is indebted to Mr. W. S. Fisher for comparing specimens with the types in his care.

Methia xanthocollis n. sp. (Cerambycidae).

Robust, piceous, head, pronotum, base of elytra and scutellum yellow.

Head wider than pronotum, coarsely confluently punctured; eyes small, finely granulate, separated by one-half the width of pronotum on vertex, deeply emarginate, lower lobe much larger than upper one, lobes connected by one row of facets; antennae when laid over the back, extending five joints beyond tips of elytra, scape stout, second joint small, one-half as long as broad, third joint twice as long as first, joints four to eleven gradually decreasing in length.

Pronotum broader than long, widest back of middle, more constricted at base than at apex; sides arcuately rounded; disk convex; surface sparsely irregularly punctured in center, punctures becoming confluent laterally, each bearing a long fine hair. Scutellum triangular.

Elytra about one-half the length of the body; sides subparallel; apices broadly rounded; disk densely punctured, crenulate, each elytron containing two irregular indistinct costae.

Beneath sparsely pubescent with short fine hairs.

Length 5.2 mm.; width 1.5 mm.

Holotype, labelled Davis Mountains, TEXAS, July 9, J. W. Green, collector, in the Wenzel collection at Ohio State University.

The short elytra, distance between eyes on vertex, color of head and pronotum will separate this species from our other forms in the genus.

Superficially this species resembles *Tessaropa bicolor* Horn. However, Mr. E. T. Cresson, Jr., who kindly compared the type states, "The type of *T. bicolor* Horn has the upper and lower portions of the eye connected by a hairlike line, having no facets. They are, however, not disconnected as in another of our species of that genus."

Elytroleptus floridanus immaculipennis n. subsp. (Cerambycidae).

Form and size of *E. floridanus* Lec., piceous on both surfaces with a small, triangular, fulvous spot on front and a similarly colored stripe on each side of median line on pronotum, running from base to anterior margin then along anterior margin to lateral margin and along lateral margin to middle of pronotum. Fulvous areas containing a dense vestiture of recumbent hairs of same shade as background.

Head densely irregularly punctured; antennae when laid over the back extending to approximately one-third the length of the elytra, serrate from the fifth joint, scape stout, second joint as long as broad, third joint nearly as long as scape, fourth joint shorter than third, fifth joint longer than fourth, sixth joint shorter than fifth, joints seven to eleven gradually decreasing in length, eleventh joint slightly longer than tenth.

Pronotum broader than long, constricted at base and apex; sides broadly rounded; surface coarsely irregularly punctured. Scutellum triangular, deeply sulcate.

Elytra elongate, dilate behind, wider than pronotum at base; sides nearly parallel near base; apices rounded; disk of each elytron bearing three costae which are more pronounced at base, but which become obsolete toward apex; surface coarsely confluently punctured, clothed with short recumbent fuscous pubescence.

Beneath more shining than above; abdomen sparsely punctate. Length 9.8 mm.; width 3.2 mm.

Holotype, female, labeled Davis Mountains, TEXAS, July 9, H. A. Wenzel, collector, in the Wenzel collection at Ohio State University.

This form is more elongate than *E. floridanus* Lec., and lacks the humeral markings on the elytra.

A New Form of Leptotes marina (Lepid.: Nymphalidae).

By C. HENNE, So. Pasadena, Calif.

My friend Mr. William N. Burdick has brought to my attention a form of *Leptotes marina* Reak., collected near his home at Lennox, California, that is so distinct from the typical insect in the unusual markings on the underside of the wings as to be deserving of a separate name. I have examined the type of *Leptotes marina* ab. *violacea* Gunder and find the underside to be the same as typical *marina*, its distinguishing characteristics being found only on the upper surface of the wings. In my estimation this new form holds the same relationship to *Leptotes marina* as *Philtotes sonorensis comstocki* Gunder does to typical *sonorensis*.

I take pleasure in naming this new form of *marina* after Mr. Burdick.

LEPTOTES MARINA Reak., form **burdicki** forma nov.

♂. Expanse 20-24 mm.

Superior surface primaries and secondaries. Violet the same as parent species.

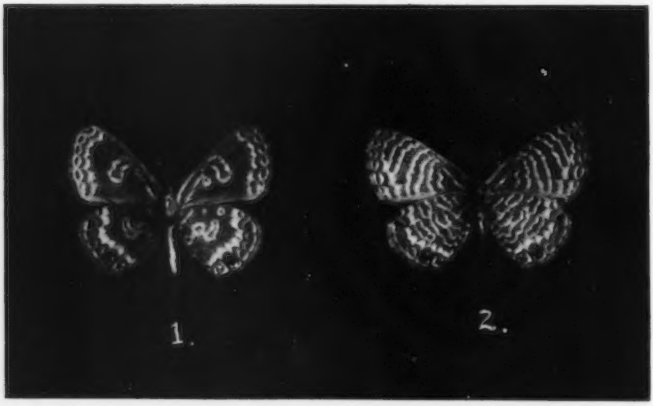


Figure 1. *Leptotes marina burdicki* (underside).
Figure 2. *Leptotes marina* (underside).

Inferior surface, primaries: Ground color: grey brown. An oblong white spot, with the center the same shade as the ground color, concave on the side nearest the base of the wing and about twice as long as wide, crosses the wing at the end of the discal cell and extends from the subcostal vein to the second median nervule. A similar but smaller and more indistinct spot lies between the subcostal vein and the inner margin, closer to the basal area. A narrow white line runs from the base of the cell. The costal margin is light grey widening at the base, and the inner margin is of the same shade. The double limbal row of spots does not differ from *marina*.

Secondaries: Ground color: same as primaries. A small spot similar to that on the primaries, but longer in relation to its width, runs from the upper radial vein to the second median nervule, and is surrounded by an indefinite number of small circular spots. The double limbal row of spots is similar to that on the primaries. The eye spots on the anal angle are the same as in *marina*.

♀. Expanse 22 mm.

Superior surface, primaries: Ground color: Lustrous violet with brown limbal area the same width as in the parent species, but the usual two or three spots within the discal area have been reduced to one. This is probably merely a case of variation, as the number of spots also varies in a series of typical *marina*. Secondaries: The same as *marina*.

Inferior surface, primaries: Ground color: The same as male, only a shade lighter. The markings are similar to those of the male. *Secondaries:* Ground color same as primaries and markings same as the male.

Described from two males and one female: *Holotype,* male, 10-10-'32; *allotype,* female, 10-10-'32; one *paratype,* male, 9-16-'34, all from Lennox, Los Angeles County, CALIFORNIA.

The types are in the Burdick collection. The paratype is in the National Museum at Washington, D. C., and any subsequent topotypes will be placed with other collections.

Odonate Fauna of Some of the East Indies.

Mr. M. A. Lieftinck has published "An Annotated List of the Odonata of Java with notes on their distribution, habits and life-history" in Treubia, xiv, livr. 4, pp. 377-462, Buitenzorg, Dec., 1934. The following numbers of species are given for the Odonate fauna of near-by areas: Malay Peninsula 167, Sumatra 180, Java 142, Borneo 213 (p. 381).

A New Species of Phyllophaga from Florida (Coleop.: Scarabaeidae).

By O. L. CARTWRIGHT, Clemson College, South Carolina.*

Phyllophaga youngi n. sp.

Type ♂ : length 16.5 mm., width 8 mm. Elongate oblong. Head dark castaneous, pronotum ferruginous, elytra ferruginotestaceous at base, shading quickly to testaceous, abdomen testaceous, legs ferruginous, the tibia darker. Upper surface shining, glabrous. Mesosternum with sparse, fine, long, yellowish hair. Abdomen with scarcely noticeable, fine, sparse, short hair at sides, somewhat longer on penultimate.

Antennae 9-jointed, club shorter than funicle, equal to scape. Clypeus moderately emarginate, sides arcuate; margin broadly not abruptly reflexed; rather coarsely punctate, closer at suture and middle where the punctures are separated by about their own diameters or less, gradually increasing to three or four times their diameters at the sides; suture impressed, subangulate at middle, arcuate to sides. Frons slightly convex, punctures about equal to those of clypeus in size, sparse near suture, separated by three or four diameters, gradually closer to about their own diameters at vertex, smooth above vertex, a few scattered punctures along occipital margin and at sides; a median longitudinal impressed line from suture almost to occiput.

Pronotum one-half wider than long, a slight depression anteriorly each side of median line; narrowed anteriorly, sides arcuate, anterior angles sharply rounded, posterior angles broadly rounded, not well defined; lateral margins crenate, reflexed narrowly at middle, less abruptly at angles; sub-evenly ocellately punctured, punctures somewhat finer and closer anteriorly where they approximate in size the punctures of the head; basal margin interrupted at middle.

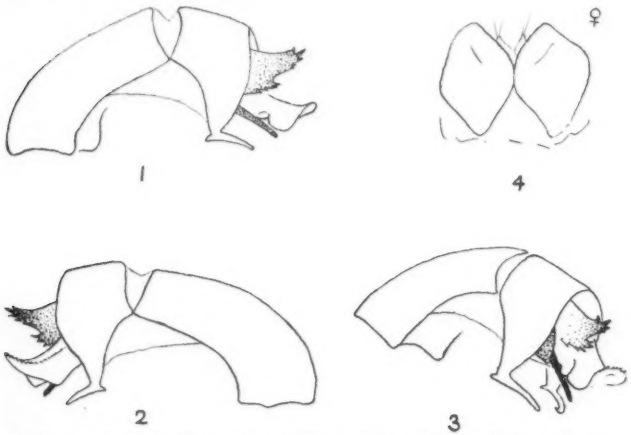
Elytra semi-transparent; sutural costae distinct, discal costae obliterated; punctures finer than on thorax, evenly distributed, deeper on discal area, subrugulose just back of scutellum. Scutellum with close punctures laterally.

Metasternum closely, moderately coarsely punctured, posterior coxal plates less closely so, the punctures bearing fine hairs. Abdominal segments more finely and less densely punctured, especially at middle. Penultimate segment with close

* Technical Contributions No. 39, from the South Carolina Experiment Station, Clemson College, South Carolina.

mixed coarse and fine punctures. Abdomen apparently constricted just before terminal segment. Posterior half of terminal segment eroded. Pygidium evenly punctate as on elytra.

Both spurs of hind tibiae free, the long spur slightly longer and short spur one-third shorter than first tarsal joint. Tooth of claw median, strong, right angled. Aedeagus, Fig. 1.



Genitalia of *Phyllophaga youngi* Cartwright; 1, 2, 3, Male aedeagus; 4, Female genitalia.

♀. Allotype: length 17 mm., width 8.5 mm. Similar to male except that the short spur of the hind tibia is subequal to and the long spur one-third longer than the first tarsal joint; the penultimate abdominal segment is but slightly constricted; the club of the antenna is much shorter than the funicle and less than the length of the scape.

The typical series includes 50 males and 63 females. The males vary in length from 16.5 to 18 mm., in width from 8 to 9 mm. The females vary from 17 to 19 mm., in length, and 8.5 to 9 mm., in width. The species was found feeding upon the Florida Trema, *Trema floridana* Britton. The entire series was collected in an area of approximately one-half square mile in Brickell Hammock, Miami, FLORIDA, by Mr. Frank N. Young, for whom the species is named. Three specimens were

collected in June, 1933, and all others between June 3 and July 17, 1934.

The male *holotype* and female *allotype* deposited in the United States National Museum. *Paratypes* placed in the Museum of Comparative Zoology at Harvard University, in the Canadian National Collection, and in the private collections of Mr. Young and the writer.

Phyllophaga youngi keys to Horn's group XV ("Revision of the Species of Lachnosterna of America North of Mexico." —Geo. H. Horn. Trans. Am. Ent. Soc. XIV 1887 p. 215). In this group it is easily separated from *P. ecostata* Horn, the only other species having the hind angles of the thorax rounded. *P. ecostata* Horn lacks sutural costae, has the clypeus entire, and the tooth of the claws small and basal. *P. youngi* is closely allied through genitalia to various Cuban species but differs from the known Cuban species listed by Dr. Chapin in his "Revision of the Pleurostict Scarabaeidae of Cuba and the Isle of Pines" (Ann. Ent. Soc. Am. XXV, 1932, p. 179), in that it is less than 20 mm. in length, with the lateral margins of the pronotum crenate.

Rohdendorfina New Name (Diptera, Muscoidea).

In proposing the name *Rhodendorfia* (ENT. NEWS, XLV, 213), the writer overlooked the fact that Smirnov used the same name in 1924 for a syrphid. The new name *Rohdendorfina* is herewith proposed for *Rohdendorfia* TT., preoccupied (nec Smirnov), genotype *Tachina oestracea* Fll.

Oestrocara gen. nov. (Family Oestridae, Order Diptera).

Genotype, *Semisuturia nitidiventris* Malloch, Malay Peninsula.

Runs out with *Oestrophasia*, from which it differs by the poststigma being less than twice length of stigma, 5R open, single pair of MD on intermediate abdominal segments. Differs from *Doddiana* (syn. *Semisuturia* Mall.) by cubitulus angular and with stump, MD on intermediate segments, fifth sternite of male with a terminal pair of narrowly separated, knoblike processes.

C. H. T. TOWNSEND.

Gasterophilus inermis Brauer, a Species of Horse Bot not previously recorded from North America (Diptera: Oestridae).

By E. F. KNIPLING, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.

While examining the stomach, duodenum, and rectum of horses slaughtered in a packing plant at Rockford, Illinois, on May 21, 1934, two bot-fly larvae determined by the writer as *Gasterophilus inermis* Brauer, a European species, were found attached to the rectum of one horse. Apparently this is the first record of the occurrence of this species in North America.

The two larvae were attached to the wall of the rectum approximately 6 to 8 inches from the anal end, the two being separated by a distance of approximately 1½ inches. The general appearance of the larvae together with that of the lesions at the point of attachment indicated that the specimens were different from *G. haemorrhoidalis*, which is the North American species that frequently, if not always, attaches to the rectum and anus before maturity.

The lesions at the point of attachment to the rectum were rather deep, resembling those caused by *G. intestinalis* in the stomach and *G. nasalis* in the duodenum, and distinctly more conspicuous than those of *G. haemorrhoidalis*.

The previously mentioned parts of the digestive tract from 65 horses were examined. Since these animals were collected from various points, the specific locality from which the infested host came is not known. The management of the slaughtering plant, however, stated that the animals were gathered from Illinois with possibly a few from near the boundary of bordering States. The host harboring this European species, therefore, probably became infested either within, or near, the State of Illinois.

The larvae were taken to Ames, Iowa, where they were determined as *G. inermis*. after the specimens had been examined and the distinguishing features recorded, the larvae were placed on moist sand, where they were allowed to remain at

room temperature. One of them pupated between 24 and 31 hours after collection, while the other required between 54 and 69 hours for this process. On June 12, 21 days after pupation, one male emerged and the other, also a male, emerged the following day. The adults were determined as *G. inermis*, the determination of the larvae being thereby substantiated.

Since there is a possibility that this species has become established in this country, it may be well to state briefly the characteristics by which the species may be distinguished from our common similar species in both the larval and adult stages, and also to give a brief review of the life history as recorded by Dinulescu.*

The mature larvae of *G. inermis* measured 15 and 15.5 mm., in length and 5.5 mm., in width at the widest point. The body is widest near the middle, tapers anteriorly, and is slightly narrower near the posterior end than near the middle, thereby differing from *G. haemorrhoidalis*, in which the body of the larva is widest near the posterior end. The color is similar to that of *G. nasalis* but slightly paler yellow, differing in this respect from that of larvae of *G. haemorrhoidalis* and *G. intesinalis*, which generally have a pink to reddish color.

The spines are situated at the anterior margin of the segments, and for the most part are arranged in two closely approximated, alternating rows; the spines in the anterior row are larger than in the more posterior one. Segments 2-11 are provided with spines. On segment 11 the spines are restricted to the ventral surface and on segment 10 approximately one-half the dorsal surface on either side of the middle is without spines. Segment 9 has a more narrowed spineless area than 10, but a wider area than on the segments anterior to it. On segments 9, 10, and 11 the second row of smaller spines is reduced. On segment 2 there are three rows of small spines on the dorsal surface, the number of rows increasing to five or six on the ventral surface. The spines on the ventral surface of segment 3 are very nearly as numerous as on segment 4; in *G. haemor-*

* Dinulescu, G. Recherches sur la biologie des Gastrophiles. Anatomie, physiologie, cycle évolutif. Ann. Sci. Nat. Zool. (10) 15: 1-183, illus. 1932.

rhoidalis the ventral spines on segment 3 are generally greatly reduced. The spines are broad at the base and come to a point more abruptly than in the other species of *Gasterophilus* larvae found in this country. Spines are lightly pigmented, with the pigmented area limited to the tip.

The adult is rather small, and densely covered with silvery to yellowish hair, contrasting with the more or less orange-colored hair in *G. haemorrhoidalis*, *G. nasalis*, and *G. intestinalis*. The third trochanter is without a prominent spur, which will readily distinguish this species from *G. intestinalis*. The abdomen is paler, but is somewhat mottled as in *intestinalis*. Dark spots on the wings will immediately distinguish this species from *G. nasalis* and *G. haemorrhoidalis*. Small spots are also present near the apex of the wings of *intestinalis*. However, there are two of these, whereas in *inermis* there is only one.

The eggs of *G. inermis*, according to Dinulescu, are deposited on the hairs on the cheeks of the host, and upon hatching the larvae penetrate the epidermis and work their way under it until they reach the mouth. The larvae then burrow in the subepithelial layer of the cheek until they molt. After molting the larvae migrate to the rectum, where they remain attached until they are mature.

A Veteran's Appeal.

[In view of Dr. Blatchley's invaluable contributions to North American entomology, especially his manuals of Coleoptera, Rhynchophora, Orthoptera and Heteroptera, we are glad to publish the following note.—EDITORS.]

On account of failing eyesight and other infirmities, I am no longer able to collect or study insects. I have to have something to do and part of my time is devoted to the collection and study of postage and revenue stamps, especially those of the countries of the western continent. I have hundreds of duplicates and will be glad to enter into exchange with any of the readers of ENTOMOLOGICAL NEWS or their friends, who are stamp collectors. If not collectors, perhaps some of the many entomologists who have used my manuals will kindly donate any old postage, cut-square envelope, or revenue stamps which they may have on hand.

W. S. BLATCHLEY, Dunedin, Florida.

Further Notes on Utah Heteroptera and Homoptera.[1]

By GEORGE F. KNOWLTON.

This report deals with additional records of Utah Heteroptera and Homoptera,[2] the distribution of which is incompletely recorded for this inter-mountain area. The writer is indebted to Messrs. H. G. Barber and P. W. Oman, of the U. S. Bureau of Entomology and Plant Quarantine, for the identification of the material. Unless otherwise indicated localities are in Utah and collections (since 1923) made by the writer.

Order HETEROPTERA.

COREIDAE.

ALYDUS PLUTO Uhl. Ft. Duchesne, Aug. 27, 1932 (F. K. Stoffers); Logan, July 10, 1933 (L. Greene).

CORIOMERIS HUMILIS (Uhl.). Avon, Aug. 10, 1930 (Knowlton::M. J. Janes); Logan, Oct. 11, 1909; Providence Canyon, June 7, 1933.

AUFEIUS IMPRESSICOLIS Stal. Salt Lake City, Sept. 15, 1925; Taylorsville.

CORIZUS HYALINUS var. SANGUINEUS (Costa). Junction, June 27, 1933.

C. PARVICORNIS Sign. Alton, June 7, 1933.

C. TUBERCULATUS Hambl. On *Artemisia tridentata* at Keetley, April 27, 1933.

ARADIDAE.

ARADUS FUNESTUS Bergr. Logan, April 7, 1933 (Stoffers).

A. LUGUBRIS Fall. Logan, June 11, 1931 (W. L. Thomas); Salt Lake City, Sept. 6, 1932.

NEIDIDAE.

JALYSUS SPINOSUS (Say). Ft. Duchesne, June 15, 1932 (Stoffers); Logan; on *Artemisia tridentata* in Sardine Canyon, July 14, 1925.

J. SPINOSUS WICKHAMI Van D. Ft. Duchesne, May 17, 1933 (Stoffers); Logan, July 4, 1907 (E. G. Titus).

LYGAEIDAE.

LYGAEUS PUSIO (Stal). Logan, Oct. 11, 1909.

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[1] Contribution from the Department of Entomology, Utah Agricultural Experiment Station. Authorized for publication by Director.

[2] ENT. NEWS 42: 40-43, 68-72; 44: 261-264.

L. LATERALIS Dall. Troutcreek, July 25, 1933 (H. B. Stafford).
NYSIUS THYMI (Wolff). Plain City, Aug. 5, 1903.
N. STRIGOSUS Uhl. Payette, Aug. 27, 1907, Idaho.
N. COLORADENSIS Bak. Strawberry, Sept. 10, 1933 (E. W. Anthon).
ARPHNUS TRISTIS Van D. Kelton, May 15, 1934.
A. CORIACIPENNIS (Stal). Cache Junction, June 11, 1903.
GEOCORIS BULLATUS (Say). Castlegate, Duchesne, Hoytsville, Kamas, Snowville, Strawberry, Tabiona, and Zion National Park.
G. PALLENS Stal. Kanosh, Lampo, Redwood, Riverside, Snowville, and Thompson.
G. ATRICOLOR Montd. Deseret, Layton, Locomotive Springs, Logan, and Snowville.
CROPHIUS ANGUSTATUS Van D. Gunnison. Butte, Green River, May 7, 1933 (Stafford).
SPHAEROBIUS INSIGNIS (Uhl.). Brigham City, Sept. 25, 1916.
LIGYROCORIS NITIDULUS (Uhl.). Kanab, June 26, 1933; Logan, July 7, 1931 (T. O. Thatcher).
PERITRECHUS FRATERNUS Uhl. Logan, March 20 and April 24, 1933 (Thatcher).
P. TRISTIS Van D. Logan, March 20, 1933 (Thatcher).
P. SASKATCHEWANENSIS Barber. Benson, July 23, 1909 (Titus::Hoff); Logan, April 15, 1909 (J. H. Horton); Troutcreek (Stafford). Also Loma, Colorado, June 19, 1933.
SPHRAGISTICUS NEBULOSUS (Fall.). Price, May 4, 1916; Whitney (Horton).
EMBLETHIS VICARIUS Horv. Logan, April 5, 1905.
SCOLOPOSTETHUS THOMSONI Reut. Logan Cany., May 29, 1933; Parley's Cany. (Titus).

PHYMATIDAE.

PHYMATA BORICA Evans. Richfield; Snowville, Aug. 22, 1931.
P. METCALFI Evans. Lucin, Aug. 11, 1931; West Jordan.
P. VICINA Handl. Ft. Duchesne, June 15, 1932 (L. Cutler). Also Ft. Collins and Palmer, Colorado.
P. EROSA SALICIS Ckl. Ogden, Aug. 18, 1927; Randlett; Rosette.

REDUVIIDAE.

REDUVIUS PERSONATUS (L.). Delta, June 26, 1930; Logan (J. H. Linford); Providence (D. Hammond). Also Lorenzo, Idaho, July 26, 1931 (Thomas).

TRIATOMA PROTRACTA (Uhl.). Troutcreek, July 23, 1933 (Stafford).

APIOMERUS SPISSIPES (Say). Logan, July 4, 1907 (Titus); Timpie, June 18, 1933.

ZELUS RENARDII Kolen. Moab, Aug. 10, 1906; St. George, July, 1928 (H. J. Pack).

RHYNCORIS VENTRALIS (Say). Cache Junction, June 3, 1912 (H. R. Hagan); Farmington; Ft. Duchesne (Stoffers).

ACHOLLA AMPLIATA Stal. Lampo, Aug. 1, 1931 (Knowlton::Thomas).

SINEA COMPLEXA Caud. Whitehouse, June 19, 1933.

NABIDAE.

NABIS INSCRIPTUS (Kirby). Logan Canyon, May 29, 1933 Knowlton::Anthon).

N. ALTERNATA Parsh. Ft. Duchesne, May 21, 1933 (C. J. Sorenson); Logan (Anthon); Manti (Pack); Provo Canyon; Stansbury Island (Knowlton::Thomas); Springville; Strawberry (Anthon).

N. ROSEIPENNIS Reut. Logan Canyon, May 17, 1933 (Knowlton::Anthon).

N. RUFUSCULUS Reut. Logan, April 6, 1905.

ANTHOCORIDAE.

ANTHOCORIS ANTEVOLENS White. Logan Canyon, July 10, 1933.

A. MELANOCERUS Reut. Found to attack potato psyllid, *Paratrioza cockerelli* (Sulc), when placed in a cage with them. Logan Canyon, July 16, 1933; Joseph (Titus).

Order HOMOPTERA.

CICADELLIDAE.

AGALLIA QUADRIPUNCTATA Prov. Providence, June 3, 1930 (Janes).

A. BIGLOVIAE Bak. On beets at Delta, June 24, 1927.

ACERATAGALLIA HELVEOLA Oman. Helper, June 17, 1933; Hurricane; Jensen; Orr's Ranch in Skull Valley.

A. UHLERI Van D. The Delle and Grantsville, June 2, 1933; Duchesne; La Sal; Stansbury Island; Torry.

IDIOCERUS AMABILIS Ball. Logan Canyon, July 31, 1933.

I. DUZEEI Prov. Strawberry, Sept. 10, 1933 (Anthon).

I. FEMORALUS Ball. Logan Canyon, March 12, 1934 (Knowlton:: Thomas).

I. LACHRYMALIS Fitch. Ft. Duchesne, Aug. 20, 1932 (Stoffers); Salt Lake City (Stafford).

I. SNOWI G. and B. Salt Lake City, July 15, 1933 (Stafford).

BYTHOSCOPUS ATER (Bak.). Indian Canyon and Willow Creek, June 12, 1933.

GYPONA VERTICALIS Stal. Lehi, Sept. 10, 1931; Logan (Thomas); Nibley; Providence (Janes); Holliday.

MESAMIA STRAMINEA (Osb.). Bountiful, Oct. 5, 1933 (Knowlton::J. A. Rowe); Fillmore; Hot Springs; Magna; Promontory; Warren.

OSBORNELLUS CONSORS (Uhl.). Sardine Canyon, Aug. 9, 1933.

TWININGIA BLANDA (Ball). Trout Creek, July 25, 1933 (Stafford).

PLATYMETOPIUS ACUTUS (Say). Bountiful, Oct. 5, 1933; Ft. Duchesne, June (Stoffers); Manti; Price; Wellington.

P. OREGONENSIS Bak. Logan and Logan Canyon, June 31, 1933; Mendon; Sardine Canyon.

P. VITELLINUS Fh. Troutcreek, July 27, 1933 (Stafford).

LAEVICEPHALUS UHLERI Oman. Logan, June 13, 1933 (Anthon).

L. COLLINUS Boh. Indian Canyon, June 12, 1933.

DELTOCEPHALUS SONORUS Ball. Provo, May 21, 1933.

ATHYSANELLA UTAHNA Osb. Flux, Aug. 28, 1933; Howell.

A. TEREBRANS (G. and B.). Grassey, June 18, 1933.

ATHYSANUS ALMUS (Van D.). Naf, Idaho, Aug. 13, 1932 (Knowlton:: Janes).

OPSIUS STACTOGALIS Fieb. On juniper at Grantsville, Oct. 19, 1931.

O. CLARIVADUS (Van D.). Cisco, June 19, 1933; Erda; Kanab; Locomotive Springs; on *Atriplex* at Promontory; Thompson; on *Chrysothamnus* at Valley Junction; Whitehouse.

O. INSANUS Ball. On Russian thistle at Deseret, June 18, 1933.

O. PAUPERCULUS (Ball). Delle, April 12, 1930.

NOVELLINA SCITULA (Ball). On sugar-beets at Hooper, Sept. 5, 1930.

N. SAUCIA (Ball). Promontory, Aug. 6, 1930.

PHLEPSIUS SPATULATUS Van D. Troutcreek, July 25, 1933 (Stafford).

P. CUMULATUS Ball. Bountiful, Oct. 5, 1933 (Knowlton:: Rowe).

P. EXTREMUS Ball. On *Artemisia tridentata* at Curlew, April 28, 1933.

P. OREGONUS Ball. Troutcreek, July 25, 1933 (Stafford).
ACINOPTERUS VIRIDIS Ball. Lampo, Aug. 12, 1932; Thompson, June 19, 1933.
THAMNOTETTIX SCHWARZI Ball. Indian Canyon, June 12, 1933; Magna; Parowan.
T. BELLI (Uhl.). Logan, July 31, 1933; Logan Canyon, Ogden.
T. ATRIDORSUM Van D. Amalga, Aug. 31, 1927; Blanding; Cedar; Cisco; Clover; Coyote; Kanosh; La Sal; Lewiston; Monticello; Nephi; Pinion Canyon; Promontory; Tooele, and Whitehouse. Also near K-Ranch, Colorado, June 11, 1933.
EMPOASCA CEREA De L. Indian Canyon and Monticello, July 27, 1932.
E. DILUDA De L. Logan Canyon, July 31, 1933.
E. MALIGNA (Walsh). Mt. Pleasant, June 28, 1933; Orem.
E. NIGRA G. and B. Currant Creek, June 11, 1933; Fillmore; Indian Canyon; La Sal; Logan; Skull Valley.
E. NIGRA var. NIGROSCUTA G. and B. Glendale, June 27, 1933; Logan Canyon; Monticello.
E. NIGRA var. TYPHLOCYBOIDES G. and B. Castlegate, June 12, 1933 (Knowlton::Thomas); Fillmore; Kanab; Lynndyl; Manderfield; Millcreek; Snowville; Spring City; Strawberry (Anthon) and Verdure.
E. FILAMENTA De Ll. Bountiful, Oct. 5, 1933 (Knowlton:: Rowe); Clinton; Coalville; Harrisviiie; Layton; Magna; Rockville; and Springdale.
EUPTERYX MELISSAE Curtis. Logan, June 9, 1933.
TYPHLOCYBA POMARIA McA. Cornish, Sept. 11, 1930; on apple and rose, Logan; Providence (Hammond).
T. ROSAE (L.). Providence, Oct. 5, 1930 (Janes) and July 18, 1931 (Hammond).

Popenoe Entomological Club.

A hectograph copy of a circular of fifteen sheets, dated March 28, 1933, has recently been received by the American Entomological Society, containing an account of "Entomology at the Kansas State College, Manhattan, Kansas; of the Popenoe Entomological Club and its recent activities; a list of the Kansas State College alumini that have been and are now doing entomological work"; and other notes on entomology at that College. The present officers of this club are: President, Merle W. Allen, Secretary-Treasurer, Harold L. Nonamaker.

Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The **figures within brackets** [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual **volume**, and in some cases the part, heft, &c. the latter **within** ( ) follows; then the pagination follows the **colon** :

All continued papers, with few exceptions, are recorded only at their first installments.

(*) Papers containing new forms or names not so stated in titles, have an * within parentheses thus (*) following the pagination of reference to paper.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. Titles of papers containing new forms or new names will be indicated by an asterisk within parentheses at end of reference, (*).

Papers published in the Entomological News are not listed.

New Titles of Periodicals and Serials Referred to.

112. Anales del Instituto de Biologia Mexico.
113. Entomologische Beihefte aus Berlin Dahlem.

GENERAL. — Alberti, B. — Ueber neubeschreibungen. [18] 28: 507-509. **Breyer, A.**—Usage de la benzine en entomologie. [Lambillionea] 1935: 16-17. **Friederichs, K.**—Ueber entomologischen unterricht. [113] 1: 55. **Grinnell, J.**—A revised life-zone map of California. [Univ. Cal. Pub. Zool.] 40: 327-330, ill. **Hering, M.**—Probleme der minenforschung. [113] 1: 44-47. **Horn, W.**—"Aus der entomologischen welt." [110] 2: 23. **Kiefer, O.**—Wintertätigkeit des entomologen. [18] 28: 513-516. **Krause, E.**—Biologische insektenaufnahmen. [113] 1: 99. **Peterson, A.**—A manual of entomological equipment and methods. Part 1. 1934.

ANATOMY, PHYSIOLOGY, ETC.—Bess, H. A.—The alimentary canal of Calosoma sycophanta. [43] 35: 54-65, ill. **von Buddenbrock, W.**—Eine neue methode zur erforschung des formensehens der insekten. [88] 23: 98-100, ill. **Drilhon, A.**—La reserve alcaline an cours de la metamorphose des lepidopteres. [77] 118: 131-132. **Gosswald, K.**—Die grundzüge der stammesgeschichtlichen entwicklung des ameisenparasitismus, neu leleuchtet durch die entdeckung einer weiteren parasitischen ameise. [113] 1: 57-62. **Hendrickson, G. O.**—The effect of heavy rains on the Orthoptera population of the prairie. [Pro. Iowa Ac. Sci.] 40:

238-239. **Homann, H.**—Die funktion des männlichen spinnentasters im versuch. [34] 109: 73-75, ill. **Janisch, E.**—Ueber das optimum der insekten. [113] 1: 131-136. **Kelsheimer, E. G.**—Response of European corn borer moths to colored lights. [43] 35: 17-27. **von Lengerken, H.**—Beine als schwirrorgan. [97] 54: 646-650, ill. **Martini, E.**—Ueber den salzgehalt der gewässer und die malarialage. [113] 1: 28-44. **Oerösi-Pál, Z.**—Ueber die ernährung der Acarapismilben der honigbienen. [113] 1: 136-138. **Pflugfelder, O.**—Experimentelle erzeugung von chitinperlen bei insekten. [34] 109: 131-134, ill. **Rösch, G. A.**—Die künstliche begattung als grundlage für vererbungs-und züchtungsversuche bei bienen. [113] 1: 131. **Schultz, V. G. M.**—Etwas über die farbenbennungen in der Lepidopterologie. [18] 28: 509-510. **Shull, A. F.**—Combinations of current and antecedent conditions in relation to wing production of aphids [92] 68: 35-50. **Spann, L.**—Studies on the reproductive systems of Gryllus assimilis. [Trans. Kans. Ac. Sc.] 37: 299-341, ill. **Stammer, H. S.**—Bau und bedeutung der malpighischen gefässe der Coleopteren. [113] 1: 118-119. **Weyer, F.**—Ueber die technik der bestimmung des von stechmücken gesogenen blutes nach der praecipitinmethode. [113] 1: 76-83. **Zacwilichowski, J.**—Ueber die innervierung und die sinnesorgane der flügel der feldheuschrecke Stauroderus biguttalus [und] der lausfliege Oxypterum. 187-196; 251-258, ill.

ARACHNIDA AND MYRIOPODA.—Bishop & Crosby.—A. n. gen. and two n. sps. of Dictynidae. [95] 48: 45-48. **Hefley, H. M.**—A new mite from the common skunk: Mephitis nigra. [103] 8: 22-24, ill.

THE SMALLER ORDERS OF INSECTS.—Adams, J. A.—The early instars of the firebrat Thermobia domestica (Thysanura). [Pro. Iowa Ac. Sci.] 40: 217-219. **Bagnall, R. S.**—On the classification of the Onychiuridae (Collembola) with particular reference to the genus Tullbergia. [75] 15: 236-242. (*). **Betten, C. et al.**—The caddis flies or Trichoptera of New York State. [N. Y. Sta. Bul.] 292: 569 pp., ill. (*). **Hungerford, H. B.**—A termite new to Kansas. Reticulitermes hageni. [103] 8: 24. **Kofoid, C. A.**—The fight against termites. [76] March 1935: 275-278. **Loudon, D.**—Comparative list of the Odonata known to occur in Iowa. [Pro. Iowa Ac. Sci.] 40: 213-215. **Werneck, F. L.**—Notas para o estudo da ordem Anopluera. [111] 29: 179-187, ill. (S*).

ORTHOPTERA.—Günther, K.—Ueber die variabilität bei Phasmoiden und anderen Orthopteren und ihre folgen für die systematik. [113] 1: 100-105. **Schleich, E. W.**—Ueber wanderheuschrecken. [113] 1: 105-107.

HEMIPTERA.—Abbott, C. E.—Notes on the oviposition and hatching of Corythucha marmorata. [19] 30: 13. **Andre, F.**—Notes on the biology of Oncopeltus fasciatus. [Iowa Jour. Sci.] 9: 73-86, ill. **Beamer & Griffith**—New Erythroneura of the obliqua group (Cicadellidae). [103] 8: 17-21, ill. **Blöte, H. C.**—Catalogue of the Coreidae in the Rijksmuseum van Natuurlijke Historie. Pt. 1. Corizinae, Alydinae. [Zool. Meded. Rijksmus, Leiden] 17: 253-285, ill. (S*). **Börner, C.**—Ueber system und stammesgeschichte der Schnabelkerfe. [113] 1: 138-144. **DeLong & Davidson.**—Further studies of the genus Empoasca (Cicadellidae). [43] 35: 29-39, ill. (*). **Drake & Harris**—Concerning Neotropical sps. of Rhagovelia. [95] 48: 33-38. (*). **Hussey, R. F.**—A new Anasa from Paraguay (Coreidae). [19] 30: 23-25. **Johnston, H. G.**—Five n. sp. of Miridae. [19] 30: 15-19. **Oman, P. W.**—New North American Agallian leafhoppers with notes on other species. [103] 8: 9-16, ill. **Thiem, H.**—Phänographisches zur massenverbreitung von schildläusen. [113] 1: 90-95, ill. **Wehrle, L. P.**—Notes on Pycnoderes quadrimaculatus (Miridae) in the vicinity of Tucson, Arizona. [19] 30: 27.

LEPIDOPTERA.—Bates, M.—The butterflies of Cuba. [Bull. Mus. Comp. Z.] 78: 63-258, ill. **Clark, B. P.**—Descriptions of 20 new Sphingidae and notes on 3 others. [Pro. N. Eng. Zool. Club] 15: 19-39. (S). **Hemming, F.**—Notes on certain genera and species of Papilionidae. [9] 68: 39-41. **Klots, A. B.**—A new Colias from S. Dakota (Pieridae). [40] 767: 2 pp. **Lemmer, F.**—New record for New Jersey. Noctuidae: Anomis flava fimbriago. [19] 30: 10. **Leussler & Bryant**—Notes on the diurnal Lepidoptera of the Canadian Arctic collected by Owen Bryant in the summers of 1929 to 1932. [19] 30: 1-10, cont. **McDunnough, J.**—A new race of Argynnis cybele from Nova Scotia. [4] 67: 18-19. **Mell, R.**—Saisonwanderungen bei Sphingiden. [113] 1: 117-118. **Wickwire & Calale**—Additional notes on Tropaea luna. [4] 67: 10.

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ENTOMOLOGISCHE BEIHEFTE AUS BERLIN-DAHLEM. Organ der Wanderversammlungen Deutscher Entomologen. Herausg. von der Biologischen Reichsanstalt und dem Deutschen Entomologischen Institut der Kaiser Wilhelm-Gesellschaft. Band 1 (Aug. 7, 1934) contains the proceedings of the Fifth "Wanderversammlung" of German Entomologists, a list of the members, the speech of welcome by the President, Prof. Dr. A. Hase, and greetings by the officers of several allied asociations. Papers on the following subjects are published: The old and the new entomology, by Dr. A. Hase (page 19) [limited to German entomologists.] The salt-content of water and egg-laying of malarial mosquitoes, Prof. E. Martini (28). Problems of research on insect miners, M. Hering (44). The new organization of the warfare against forest insects in Prussia, discussed by H. Eidmann (47). Condition and form of hygienic entomology, J. Wilhelmi (48). Importance of German entomological faunistics, F. Rüschkampf [in which Titschack is quoted as stating that of the 5,732 European entomologists more than half, or 3,713, are in Germany] (53). Entomological instruction, K. Friederichs (55). Polyeder-virus in *Argynnis lathonia* l, W. A. Collier (56). The bases of the phylogenetic development of ant-parasitism newly illuminated by the discovery of an additional parasitic ant, K. Gösswald (57). Demonstration of the bee-eater (Bienenwolf) plague on the Werra, and liability to inheritance in sour cherries of the cherry fruit-fly, H. Thiem (62). The distress of the German entomological publications, W. Horn (63). Sugarbeet injurers and landscape in Turkey, F. Eckstein (64). The guest relations of *Atta sexdens*, H. Eidmann (69). The ecological race group of *Chrysis ignita*, H. Bischoff (72). The technique of identification of blood sucked up by piercing flies by the precipitin method, F. Weyer (76). Contributions to the history, distribution and ecology of insects injurious to stored products, F. Zacher (83). Genetics of the geographical variability of *Epilachna chrysomelina*, K. Zimmermann (86). Phenological data on mass distribution of scale insects, H. Thiem (90, ill.). Insects injuring stored products, G. Kunike (96). Biological insect photographs, E. Krause (99). Variability in Phasmoids and other Orthoptera and its consequences for classification, K. Günther (100). Migratory grasshoppers, E. W. Schleich (105). Fauna of the drug bazaar at Cairo, F. Zacher (107). The Apollo butterfly in the mirror of art, F. Bryk (108, ill.). Alternation of generations of the Blastophaga gall wasp in connection with the development of cultivated and wild figs, E. Werth (113, ill.). Seasonal migration of Sphingidae, R. Mell (117). Structure and significance of the Malphighian vessels of Coleoptera, H. J. Stammer (118). Microklimate and distri-

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OBITUARY.

Frederick Augustus Dixey, M.A., D.M., F.R.S.—It is with profound regret that we announce the tragic death of this well-known and greatly esteemed entomologist. On the evening of January 14th he was knocked down by a motor-car in Park Lane, London, and sustained a fractured skull and other severe injuries; and two days later he passed away in St. George's Hospital, whither he had been conveyed after the accident. He was born in London on December 9th, 1855, and was educated at Highgate School, whence he went up in 1874 as a scholar to Wadham College, Oxford. His active association with Wadham, except for a brief interval (1880-3), during which he was Demonstrator of Physiology at University College, London, remained unbroken until 1928, and he held in succession the responsible offices of Junior Bursar, Bursar and Sub-Warden; and on his retirement was elected an Honorary Fellow of his college. [He was] a finished classical scholar and . . . author of several memoirs on medical science of high importance. As our leading authority on the Pierine butterflies of the world, the succession of exhaustive memoirs from his pen, most of which appeared in the Transaction of the Entomological Society of London, dealing with the phylogeny, mimetic associations, geographical distribution and general bionomics of this important section of the Lepidoptera, and more especially his elaborate researches in connection with the characteristic scent-scales or plumules and their importance in the indication of the affinities and determination of species, have taken high rank as entomological classics. He occupied the presidential chair of the Entomological Society in 1909-10. In the latter year he was elected a Fellow of the Royal Society, and in 1919 he was President of the Zoological Section of the British Association.—J. J. Walker in The Entomologists' Monthly Magazine, February, 1935 (condensed).

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Exchange—Will collect insects of Connecticut this season and desire to get in touch with collectors desiring this material, either in exchange or for cash. Harry L. Johnson, So. Meriden, Conn.

Wanted—Names and addresses of those desiring Cocoons of Actias luna and Automeris io. Exchange considered. Eggs in season. Virginia Weaver, 822 S. College Ave., Tulsa, Okla.

Literature Wanted—Barnes & McDunnough's "Contributions," Henry Edward's "Pacific Coast Lepidoptera" and other publications relative to North American Lepidoptera. C. F. dos Passos, Mendham, New Jersey.

Geometers Wanted from all parts of United States, for cash or exchange. Edward Guedet, P. O. Box 305, Napa, California.

Wanted—Tabanidae (Horseflies and Deerflies). Exchange, purchase, or for determination. G. B. Fairchild, P. O. Box 272, Monticello, Fla.

Exchange.—Lepidoptera of the Western United States for rare American or tropical specimens. C. W. Herr, Woodburn, Ore. R-3.

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